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## Our Mission:

The ASCE Committee on Mobility on Demand and as a Service (MODaaS) e-Newsletter aims to highlight and recognize the research and activities of the members and friends of the committee.

This eNewsletter was produced by one of our committee working groups that focuses on equity implications of emerging mobility options.

If you are interested in joining or participating in the MODaaS Committee, please contact our chair:

Louis.Alcorn@wsp.com

Check out our webpage for upcoming events and regular updates from our committee!

<https://tinyurl.com/ASCE-MODAAS>

## Equity in MOD/MaaS Advancements

### Equity in MOD/MaaS Advancements Showcased at the ITS World Congress

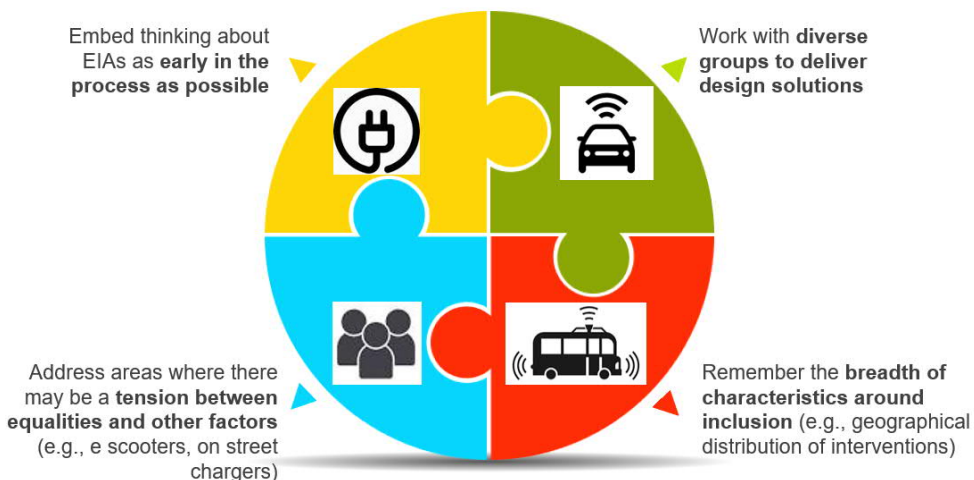
Carol Schweiger, Schweiger Consulting

The keen interest in addressing equity, diversity, accessibility and inclusion (EDAI) in technology-enabled mobility is rapidly expanding in three specific areas, as follows. The 2021 ITS World Congress in Hamburg, Germany had multiple sessions discussing these areas:

- Overcoming previously overlooked **culture, gender, physical ability, and ability to access and use** intelligent transportation systems (ITS). This can be accomplished by addressing these factors early in the planning and design of ITS.
- Identifying the **equity of technology-enabled mobility services**, defining key **equity dimensions and metrics**, and developing **mobility equity frameworks**.
- Addressing bias in ITS data, data analysis and use. The data generated, analysed and used by ITS technologies may result in **societal or ethical issues**. Data may not be impartial since the data may be used in a way that can create **biases**.

One unique project in the second area is the development of an equity assessment tool as part of the US Transportation Research Board's (TRB's) Transit Cooperative Research Project (TCRP) B-47: Impact of Transformational Technologies on Underserved Populations. In this project, four dimensions of equity for new mobility services are identified: (1) firms, markets, and competition; (2) regulations and subsidies; (3) geographies and jurisdictions; and (4) stakeholder groups. Also, the project identified barriers for a variety of mobility services among underserved groups, and then looked at the usage of these services if the barriers were removed. This project, which runs through March 2023, is developing a playbook with guidance on corrective actions with data, methods, and metrics to achieve inclusive mobility.

At the 2021 Intelligent Transport Systems (ITS) World Congress held in Hamburg, Germany in October, Professor Sarah Sharples, Chief Scientific Adviser at the United Kingdom Department for Transport (DfT) described an equality impact assessment (EIA) as well as the future of equity in ITS, which consists of the four approaches shown here:



Source: Professor Sarah Sharples, Chief Scientific Adviser, DfT (UK), "Equalities, Equality Impact Assessments, and Future of Transport", 2021 ITS World Congress, Hamburg, Germany, Session SIS 75

## Equity in MOD/MaaS Advancements

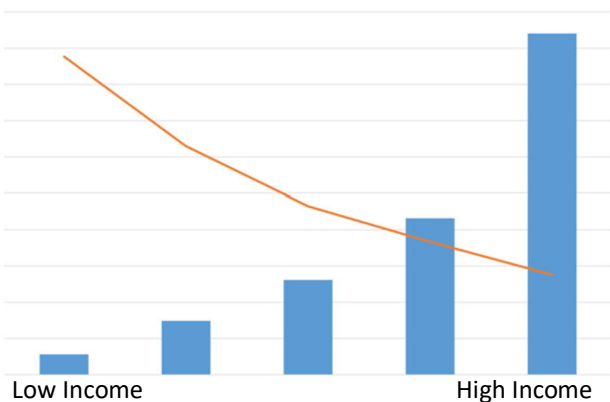
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Another example of incorporating EDAI in a technology-enabled mobility project was in the 4All project conducted by the Swedish National Road and Transport Research Institute which studied self-driving buses. This project examined how to define and treat accessibility, and the willingness and ability to use self-driving vehicles, as well as how the EDAI lessons learned from the trial in Vallastaden, Linköping could be applied to other locations.

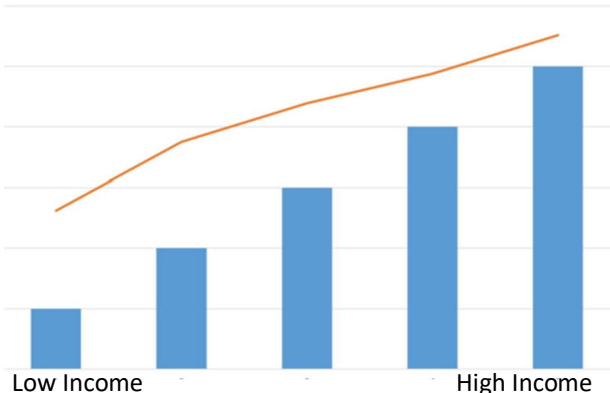
### Data in Action

#### Proportion of Transportation Expenditure Relative to Income

##### In the United States



##### In Europe



#### Legend

- Proportion of Population in Income Bracket
- Gross Expenditure on Transportation

**Key takeaway:** In the United States there is an inverse relationship between gross expenditure on transportation and income, whereas in Europe, higher income correlates with higher gross spending on transportation.

Source: Victoria Sheehan, Commissioner of New Hampshire Department of Transportation, "Diverse, Equitable and Inclusive Technology- Enabled Mobility," presentation at 2021 ITS World Congress, SIS 62, Hamburg, Germany, October 2021.

## Research Spotlight

### A Study on Impacts of MaaS Associated with Spatial Accessibility to Enhance Social Equity

Tugsdelger Chinbat

PhD Candidate, Yokohama National University

Transportation equity exists when different demographics have equal access to transportation, regardless of location, neighborhood, age, gender, income, religion, or any other disaggregation. Providing equitable access to social and economic opportunities is the primary objective of the transportation system.

The unprecedented demographic change of Japan's aging society has led to an increase in Mobility-as-a-Service (MaaS) projects in rural areas. Hence, there is a need to understand the travel needs of older people to establish better transportation systems, examine how MaaS can be expanded, and clarify its effects on improving the well-being of older people as well as social equity.

Mobility in later life is not only about moving from A to B, but also a central to well-being, quality of life, and maintaining independence and social connectedness (Giesel and Köhler, 2015; Pantelaki et al., 2021; Schwanen and Ziegler, 2011). At the same time, it is essential to study the needs of senior citizens in rural areas and determine whether emerging transportation systems such as MaaS could provide them with greater access to nonwork activities.

#### Preliminary Findings:

Transportation is less accessible to the elderly than young and middle-aged people in Shobara, Hiroshima. AI demand shuttle bus resulted in a decrease in the accessibility inequity compared to a regular bus. Furthermore, it demonstrated the importance of maintaining well-being of older people through a social equity framework and a greater understanding of older people's needs and satisfaction levels has to be prioritized when we implement new transportation options in rural Japan.

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The MODaaS e-Newsletter is looking to expand! Please contact us if you have anything you would like to share in an upcoming issue. Subjects may include, but are not limited to, the following:

- Interesting research projects you have been undertaking (recently completed or ongoing);
- Announcements on upcoming conferences, workshops, etc.

